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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/574,899	04/06/2006	Nobuki Matsui	4633-0165PUS1	3397

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EXAMINER	
RAHIM, AZIM	

ART UNIT	PAPER NUMBER
3744	

NOTIFICATION DATE	DELIVERY MODE
10/30/2008	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

mailroom@bskb.com

Office Action Summary	Application No.	Applicant(s)	
	10/574,899	MATSUI ET AL.	
	Examiner	Art Unit	
	AZIM RAHIM	3744	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *27 August 2008*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-25* is/are pending in the application.

4a) Of the above claim(s) *3,5-20 and 22-25* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1,2,4 and 21* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *4/6/2006,7/30/2007*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Election/Restrictions

1. Applicant's election without traverse of Species M directed to claims 1, 2, 4 and 21 in the reply filed on 8/27/2008 is acknowledged.

2. Claims 3, 5-20 and 22-25 are withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected Species A-L and N-AC, there being no allowable generic or linking claim. Election was made **without** traverse in the reply filed on 8/27/2008.

Claim Objections

3. Claims 2, 4 and 21 are objected to because of the following informalities: In line 4 of claim 2, the recitation "configured to operates" should be corrected to recite --configured to operate--. In line 6 of claim 21, the limitation "a variable-opening expansion valve" should be corrected to recite --the variable-opening expansion valve-- in order to provide proper antecedent basis in the claims. Appropriate correction is required.

Claim Rejections - 35 USC § 112

4. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

5. Claims 1, 2, 4 and 21 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 2 is confusing as it is unclear how the utilization side heat exchanger refers to the previously recited utilization side heat exchanger above in claim 1. In addition, claim 1 is confusing as the utilization side heat exchanger has been previously defined to be an adsorption heat exchanger, and it is unclear how the adsorption heat exchanger can now be an air heat exchanger in claim 2. Referring to page 94 of the specification and figures 25A-26B, there are two absorption heat exchangers 31 and 32, an indoor heat exchanger 22 and an outdoor heat exchanger 21. For the purpose of further prosecuting this office action, the limitations "a utilization side heat exchanger" and "the utilization side heat exchanger" as claimed in claim 1 will be interpreted as --a first utilization side heat exchanger-- and --the first utilization side heat exchanger-- respectively; and the limitation "a utilization side heat exchanger" as claimed in claim 2 will be interpreted as --a second utilization side heat exchanger--.

Regarding claim 4, the limitation "the refrigerant circuit includes first and second adsorption heat exchangers and is" is somewhat unclear, since it is not entirely clear as to how there is now two adsorption heat exchangers claimed when there is one adsorption heat exchanger claimed in claim 1. Also there is some confusion as to whether or not these adsorption heat exchangers are included as utilization side heat exchangers. Furthermore, it is confusing as to how claim 4 reads on the elected species, where there is a total of four heat exchangers disclosed in figures 25A - 26B. For the purpose of further prosecuting this office action, the limitations "an adsorption heat exchanger" and "the adsorption heat exchanger" as claimed in claim 1 will be interpreted as --a first adsorption heat exchanger-- and --the first adsorption heat exchanger-- respectively; the limitation "the adsorption heat exchanger" as claimed in claim 2 will be interpreted as --the first adsorption heat exchanger--; and the

limitation "the refrigerant circuit includes first and second adsorption heat exchangers and is" as recited in claim 4 will be interpreted as --the refrigerant circuit further includes a second adsorption heat exchanger, wherein the first and second adsorption heat exchangers are--.Also, the limitation "and the air conditioning system supplies the air dehumidified or humidified by the adsorption heat exchanger to the room to cope with latent heat load in the room" will be interpreted as -- the air conditioning system supplies the air dehumidified by the first adsorption heat exchanger to the room to cope with latent heat load in the room, or the air conditioning system supplies the air humidified by the first adsorption heat exchanger to the room to cope with latent heat load in the room --.

Regarding claim 21, the limitation "the refrigerant circuit includes first and second adsorption heat exchangers as the utilization side heat exchangers" is somewhat unclear, since it is not entirely clear as to how there is now two adsorption heat exchangers claimed when there is one adsorption heat exchanger claimed in claim 1. Also there is some confusion as to whether or not these adsorption heat exchangers are included as utilization side heat exchangers. Furthermore, it is confusing as to how claim 21 reads on the elected species, where there is a total of four heat exchangers disclosed in figures 25A - 26B. For the purpose of further prosecuting this office action, the aforementioned limitation will be interpreted as --the refrigerant circuit further includes a second adsorption heat exchanger--. In addition, it is unclear, since it is not entirely clear as to whether the limitations "a variable-opening expansion valve" in claim 21, line 5, and "a variable-opening expansion valve" in claim 21, lines 6 and 7 refer to one expansion valve, or different expansion valves. For the purpose of further prosecuting this office action, the aforementioned limitations will be interpreted as --a first

variable-opening expansion valve-- and --a second variable-opening expansion valve-- respectively.

Claim Rejections - 35 USC § 102

6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

7. Claims 1, 2, 4 and 20 are rejected under 35 U.S.C. 102(b) as being anticipated by Maeda et al. (US 6,244,057).

Regarding claim 1, Maeda et al. teach an air conditioning system [see figure 7] for running a refrigeration cycle by circulating refrigerant through a refrigerant circuit (261-267) provided with a heat-source side heat exchanger (210) and a first utilization side heat exchanger (desiccant bed 103A) and supplying air having passed through the first utilization side heat exchanger to a room (via process air outlet) to cope with latent heat load and sensible heat load in the room [the utilization side heat exchanger is capable of performing this intended use function], wherein the refrigerant circuit includes as the utilization side heat exchanger a first adsorption heat exchanger (desiccant bed 103A) provided with an adsorbent on the surface thereof (column 1, line 47; desiccant), and the refrigerant circuit alternately creates an adsorption action of allowing moisture in the air to adsorb on the first adsorption heat exchanger [see

column 1, lines 29-35] and a regeneration action of allowing moisture to desorb from the first adsorption heat exchanger [see column 1, lines 61-65].

Regarding claim 2, Maeda et al. teach that the refrigerant circuit includes, as a second utilization side heat exchanger, an air heat exchanger (220) for exchanging heat between air and refrigerant [the air heat exchanger is capable of performing this intended use function] in addition to the first adsorption heat exchanger and is configured to operate in a mode in which the air heat exchanger serves as an evaporator and the heat-source side heat exchanger serves as a condenser [column 1, lines 35-37], and the air conditioning system supplies the air having passed through the air heat exchanger to the room to cope with sensible heat load in the room [column 1, lines 35-46].

Regarding claim 4, Maeda et al. teach that the refrigerant circuit further includes a second adsorption heat exchanger (desiccant bed 103B), wherein the first and second adsorption heat exchangers are configured to repeatedly alternate between a mode in which the first adsorption heat exchanger serves as an evaporator and the second adsorption heat exchanger serves as a condenser [column 1, lines 35-37] and a mode in which the first adsorption heat exchanger serves as a condenser and the second adsorption heat exchanger serves as an evaporator [see column 1, lines 61-65], the refrigerant circuit dehumidifies air in the adsorption action by allowing moisture in the air to adsorb on the adsorption heat exchanger serving as an evaporator [see column 1, lines 29-35] and humidifies air in the regeneration action by allowing moisture to desorb from the adsorption heat exchanger serving as a condenser [see column 1, lines 61-65; the

reversal of the refrigerant cycle], and the air conditioning system supplies the air dehumidified by the first adsorption heat exchanger to the room to cope with latent heat load in the room [see column 1, lines 29-35].

Claim Rejections - 35 USC § 103

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

9. The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

10. Claim 21 is rejected under 35 U.S.C. 103(a) as being unpatentable over Maeda et al. as applied to claim 2 above, and further in view of Vaynberg et al. (US 5,687,579).

Regarding claim 21, Maeda et al. teach all the limitations of the claimed invention, and also teach that the refrigerant circuit further includes a second adsorption heat exchanger (desiccant bed 103B), and the refrigerant circuit comprises the heat-source side heat exchanger, a variable-opening expansion valve (240A) and the air heat exchanger along with the first

adsorption heat exchanger, the variable-opening expansion valve and the second adsorption heat exchanger being arranged in series [illustrated in figure 7].

However, Maeda et al. fail to teach that the refrigerant circuit comprises a first circuit in which the heat-source side heat exchanger, a first variable-opening expansion valve and the air heat exchanger are arranged in series and a second circuit in which the first adsorption heat exchanger, a second variable-opening expansion valve and the second adsorption heat exchanger are arranged in series, the first and second circuits being connected in parallel with each other.

The general concept of providing a first circuit in which the heat-source side heat exchanger, a first variable-opening expansion valve and the air heat exchanger are arranged in series and a second circuit in which the first adsorption heat exchanger, a second variable-opening expansion valve and the second adsorption heat exchanger are arranged in series, the first and second circuits being connected in parallel with each other falls within the realm of common knowledge as obvious mechanical expedient and is illustrated by Vaynberg which teaches the limitation of providing an air conditioning apparatus [see abstract and figure 1] having a first circuit (circuit 1) in which a first evaporator (7), a first expansion valve (6) and a first condenser (5) are arranged in series [illustrated in figure 1] and a second circuit (circuit 2) in which second evaporator (9), a second expansion valve (11) and a second condenser (13) are arranged in series [illustrated in figure 1], the first and second circuits being connected in parallel with each other [illustrated in figure 1], and one having ordinary skill in the art would have been motivated to include the use of a first circuit in which the heat-source side heat exchanger, a first variable-opening expansion valve and the air heat exchanger are arranged in series and a second circuit in which the first adsorption heat exchanger, a second variable-opening expansion valve

and the second adsorption heat exchanger are arranged in series, the first and second circuits being connected in parallel with each other in order to provide for increased cooling capacity for larger cooled enclosures, thus increasing system efficiency.

Conclusion

11. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Mudford (US 4,983,032) and Maeda (US 6,199,394).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to AZIM RAHIM whose telephone number is (571) 270-1998. The examiner can normally be reached on Monday - Thursday 7am - 3pm EST and Friday 7am - 9:30am EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Frantz Jules can be reached on 571-272-6681. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/A. R./
Examiner, Art Unit 3744
10/19/2008

/Frantz F. Jules/
Supervisory Patent Examiner, Art Unit 3744